MINNESOTA DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLAN FOR RURAL INTERSECTION CONFLICT WARNING SYSTEM (RICWS) AND LIGHTING
AT THE INTERSECTION OF T.H. XX AT C.S.A.H. YY NEAR GRANITE FALLS, MN. (CHippewa COUNTY)
STATE PROJ. NO. XXXX-XXXX
REF POINT XXXX.XXX

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT

INDEX
1 TITLE SHEET
2 REMARKS SHEET
3 Drawings of Signs and Symbol Details
4 Drawings of Signs and Symbol Details
5 Drawings of Signs and Symbol Details
6 Drawings of Signs and Symbol Details
7 Drawings of Signs and Symbol Details
8-16 Drawings of Signs and Symbol Details

THIS PLAN CONTAINS 16 SHEETS

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME:
Lic. No. XXXX Date:

MINN. PROJECT NO. XXXX-XXXX

STATE PROJECT NO. XXX-XXXX

TYPED NAME
Lic. No. XXXX Date:

ADDRESS:

STATE DESIGN ENGINEER

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

LIC. NO.

CERTIFICATION:

STATE AID ENGINEER

RECOMMENDED FOR APPROVAL
CITY OF _____ ENGINEER
DATE:

RECOMMENDED FOR APPROVAL
COUNTY ENGINEER
DATE:

RECOMMENDED FOR APPROVAL
DISTRICT TRAFFIC ENGINEER
DATE:

RECOMMENDED FOR APPROVAL
DISTRICT TRANSPORTATION ENGINEER
DATE:

RECOMMENDED FOR APPROVAL
STATE PRE-LETTING ENGINEER
DATE:

APPROVED
DISTRICT STATE AID ENGINEER
DATE:

APPROVED
DISTRICT STATE AID ENGINEER
DATE:

APPROVED
STATE AID ENGINEER
DATE:

APPROVED
STATE AID ENGINEER
DATE:

APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER

DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

S.P. XXXX-XXXX (T.H. XX)

SHEET 1 OF 16 SHEETS

I HEREBY CERTIFY THAT THE FINAL FIELD REVISIONS, IF ANY, OF THIS PLAN WERE MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

LIC. NO.

DATE:

APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER

PRE-LETTING ENGINEER

STATE AID ENGINEER

STATE DESIGN ENGINEER

LICENSE NUMBER:

LIC. NO.

DATE:

APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER

PRE-LETTING ENGINEER

STATE AID ENGINEER

STATE DESIGN ENGINEER

LICENSE NUMBER:

LIC. NO.

DATE:
## Statement of Estimated Quantities

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Unit</th>
<th>Total Estimated Quantities</th>
<th>State S.P. XXXX-XXXX</th>
<th>County S.A.P. XXX-XXX-XXX</th>
<th>Federal S.P. XXX-XX</th>
<th>City S.A.P. XXX-XXX-XXX</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011.601</td>
<td>As Built</td>
<td>Lump Sum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2021.501</td>
<td>Mobilization</td>
<td>Lump Sum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2104.502</td>
<td>Salvage Sign Type C</td>
<td>Each</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2105.502</td>
<td>Salvage Sign Type D</td>
<td>Each</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2563.601</td>
<td>Traffic Control</td>
<td>Lump Sum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2564.502</td>
<td>Install Sign Type C</td>
<td>Each</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2565.502</td>
<td>Install Sign Type D</td>
<td>Each</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2565.616</td>
<td>Flashing Beacon System</td>
<td>System</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2582.503</td>
<td>24&quot; Solid Line Multi-Comp GR 3N (WH)</td>
<td>Lin FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Participation/Cost Breakdown**

- State: S.P. XXXX-XXXX
- County: S.A.P. XXX-XXX-XXX
- Federal: S.P. XXX-XX
- City: S.A.P. XXX-XXX-XXX
1. Use 3 lb/ft stub posts; shall conform to MNDOT 3401.

2. Use 2.5 lb/ft riser posts, stringers, knee braces and lateral braces, all shall conform to MNDOT 3401.

3. See sign data sheets for number of posts, knee braces, post lengths and spacings, as determined from temp charts 6.3 and 6.4.

4. If more than two posts are needed, the minimum spacing shall be 45° between posts.

5. Type D sign panels shall be bolted to stringers at 24" maximum intervals in accordance with the type D stringer and panel-joint detail (see MNDOT standard signs and markings manual).

6. Mounting (punch code) for type C sign panels shall be as indicated in the MNDOT standard signs and markings manual unless otherwise specified.

7. All riser (vertical) U posts shall be spliced, driven stub posts shall be at least 7' long.

8. Use stainless steel 3/8" bolts, washers and nylon insert lock nuts as shown for all ground mounted and overhead mounted signs.

9. Stainless steel washer with same dimensions shall be provided between all nylon washers and bolt heads.

10. Bracing stubs shall be no more than 4" above ground and embedded at least 42".

11. A-frame bracket shall be steel conforming to MNDOT 3306 and galvanized in accordance with MNDOT 3394.

12. Collars shall be used to shim overlays and legend components away from panel where interference with bolt heads is encountered. (See MNDOT standard signs and markings manual unless otherwise specified.

13. Two post type C signs shall be reinforced with at least one lateral brace. Installations where the total panel height is 60" or more shall have two lateral braces located approximately at the quarter points.

14. Where 2 single post type C signs are installed side by side, they shall be reinforced laterally by at least 2 braces, bolted at each post and located approximately at the quarter points.

15. Where 3 or more type C signs are installed side by side, they shall be reinforced laterally by at least 2 braces, bolted at each post and post section and located approximately at the quarter points as shown in modified type C installation.
LATERAL BRACE OR STRINGER
SPICE DETAIL (EXPLODED VIEW)

VERTICAL POST

SECTION A-A

SECTION B-B

A-FRAME BRACKET
(Steel MNDOT 3306 Galvanized PER MNDOT 3394)

STRUCTURAL SPLICE
(USE WHEN IT IS NECESSARY TO FABRICATE THE CORRECT LENGTH OF POST FROM TWO PIECES)

TYPICAL "A-FRAME" INSTALLATION
TYPE "D" SIGNS

TYPICAL "A-FRAME" INSTALLATION
TYPE "C" SIGNS

TYPICAL "A-FRAME" INSTALLATION
TYPE "C" SIGNS

18" MIN.
**Lighting Unit Type 9-40**

- MAST ARM LENGTH | RADIUS
  - 6  | 5
  - 9  | 8
  - 12 | 10

USE THE MAXIMUM DISTANCE WHENEVER POSSIBLE. IF THE MINIMUM DISTANCE CANNOT BE OBTAINED CONTACT THE DISTRICT/DIVISION TRAFFIC ENGINEER. LIGHT FOUNDATIONS SHALL BE PLACED IN ACCORDANCE WITH 2545.3F2. DISTANCES SHALL BE MEASURED FROM THE EDGE OF DRIVING LANE OR TURN LANE.
NOTES:

1) The exact location of handholes, flashe/ers, signs, roadway detectors, and cabinet pad shall be field verified by the engineer and local district traffic personnel.
2) See special provisions for state furnished materials.
3) Coordinate service connection with the power company (and with engineer) as required for coordinating the power for the new flasher system.
4) See details for further information regarding flasher installations.
5) This plan specifies conduit sizes, types, and general locations. The exact locations will be determined in the field, conduit under existing roadways and driveways will require boring.
6) Contractor shall maintain 300 foot spacing between new signs and existing signs on trunk roadways, unless otherwise directed by the engineer.
7) Devices shall be furnished and installed at distances listed from the intersections.
8) See signing details for typical mounting and sign placement.
9) New handholes to be furnished and installed by the contractor shall be in accordance with the most approved/qualified products list. Maximum spacing of handholes allowed is 400 feet.
10) All new conduit shall be PVC-SCHEDULE 80 or HDPE.
11) All new conduit shall be in accordance with the approved/qualified products list. Maximum spacing of handholes allowed is 400 feet.
12) All new conduit shall be in accordance with the approved/qualified products list. Maximum spacing of handholes allowed is 400 feet.
13) All new conduit shall be in accordance with the approved/qualified products list. Maximum spacing of handholes allowed is 400 feet.
14) All new conduit shall be in accordance with the approved/qualified products list. Maximum spacing of handholes allowed is 400 feet.
15) All new conduit shall be in accordance with the approved/qualified products list. Maximum spacing of handholes allowed is 400 feet.
16) All new conduit shall be in accordance with the approved/qualified products list. Maximum spacing of handholes allowed is 400 feet.

additional Bond 1234567890

F & I ROADWAY DETECTORS

<table>
<thead>
<tr>
<th>NO.</th>
<th>SIZE</th>
<th>LOCATION</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1-1</td>
<td>6''</td>
<td>ING</td>
<td>GR</td>
</tr>
<tr>
<td>D1-2</td>
<td>6''</td>
<td>6''</td>
<td>PVC</td>
</tr>
<tr>
<td>D1-3</td>
<td>6''</td>
<td>6''</td>
<td>PVC</td>
</tr>
<tr>
<td>C1-1</td>
<td>6''</td>
<td>6''</td>
<td>PVC</td>
</tr>
<tr>
<td>C1-2</td>
<td>6''</td>
<td>6''</td>
<td>PVC</td>
</tr>
<tr>
<td>C1-3</td>
<td>6''</td>
<td>6''</td>
<td>PVC</td>
</tr>
<tr>
<td>C1-4</td>
<td>6''</td>
<td>6''</td>
<td>PVC</td>
</tr>
<tr>
<td>C1-5</td>
<td>6''</td>
<td>6''</td>
<td>PVC</td>
</tr>
<tr>
<td>C1-6</td>
<td>6''</td>
<td>6''</td>
<td>PVC</td>
</tr>
</tbody>
</table>

LOCATION: DISTANCE FROM STOP BAR TO FRONT OF ROADWAY DETECTOR.
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer. I am a member of the American Society of Civil Engineers and a duly licensed professional engineer under the laws of the State of Minnesota.

Printed Name: [Name]
Lic. No.: [License Number]
Date: [Date]

Engineer under the laws of the State of Minnesota.

DIRECT SUPERVISION:

NOTE:
1. The exact location of handholes, flashters, signs, roadway detectors, and cabinet pad shall be field verified by the engineer and MnDOT district traffic personnel.
2. See special provisions for state furnished materials.
3. Coordinate service connection with the power company and with engineer contractor is responsible for coordinating the connection of the power for the new flashter system.
4. See details for further information regarding flashter installation.
5. This plan specifies conduit sizes, types, and general locations, the exact locations will be determined in the field. Conduits under existing roadways and culverts will require boring.
6. Contractor shall maintain 300 foot spacing between new signs and existing signs on trunk roadways, unless otherwise directed by the engineer.
7. Devices shall be furnished and installed at distances listed from the intersection.
8. See details for typical mounting and sign placement.
9. New handholes to be furnished and installed by the contractor shall be in accordance with the MnDOT approved/qualified products list. Maximum spacing of handholes allowed is 400 feet.
10. All new conduit shall be PVC-SCHEDULE 80 or HDPE 10.
11. All wires listed are AWG American Wire Gauge.
12. Conduit under existing roadways and locations. The exact locations will be determined in this plan specifies conduit sizes, types, and general locations.
13. Installations.
14. See details for further information regarding flashter devices.
15. The power for the new flashter system.
16. Coordinate service connection with the power company (and engineer). Contractor is responsible for coordinating.
17. Other provisions for state furnished materials.
18. Traffic personnel.
19. Field verified by the engineer and MnDOT district traffic personnel.
20. The exact location of handholes, flashters, signs, roadway detectors, and cabinet pad shall be field verified by the engineer and MnDOT district traffic personnel.
21. See special provisions for state furnished materials.
22. Coordinate service connection with the power company and with engineer contractor is responsible for coordinating the connection of the power for the new flashter system.
23. See details for further information regarding flashter installation.
24. This plan specifies conduit sizes, types, and general locations, the exact locations will be determined in the field. Conduits under existing roadways and culverts will require boring.
25. Contractor shall maintain 300 foot spacing between new signs and existing signs on trunk roadways, unless otherwise directed by the engineer.
26. Devices shall be furnished and installed at distances listed from the intersection.
27. See details for typical mounting and sign placement.
28. New handholes to be furnished and installed by the contractor shall be in accordance with the MnDOT approved/qualified products list. Maximum spacing of handholes allowed is 400 feet.
29. All new conduit shall be PVC-SCHEDULE 80 or HDPE 10.
30. All wires listed are AWG American Wire Gauge.

NOTE:
1. The exact location of handholes, flashters, signs, roadway detectors, and cabinet pad shall be field verified by the engineer and MnDOT district traffic personnel.
2. See special provisions for state furnished materials.
3. Coordinate service connection with the power company and with engineer contractor is responsible for coordinating the connection of the power for the new flashter system.
4. See details for further information regarding flashter installation.
5. This plan specifies conduit sizes, types, and general locations, the exact locations will be determined in the field. Conduits under existing roadways and culverts will require boring.
6. Contractor shall maintain 300 foot spacing between new signs and existing signs on trunk roadways, unless otherwise directed by the engineer.
7. Devices shall be furnished and installed at distances listed from the intersection.
8. See details for typical mounting and sign placement.
9. New handholes to be furnished and installed by the contractor shall be in accordance with the MnDOT approved/qualified products list. Maximum spacing of handholes allowed is 400 feet.
10. All new conduit shall be PVC-SCHEDULE 80 or HDPE 10.
11. All wires listed are AWG American Wire Gauge.

SCALE IN FEET

MATCHLINE B
SEE SHEET 8

MATCHLINE A
SEE SHEET 8

MATCHLINE C
SEE SHEET 8

MATCHLINE D
SEE SHEET 8

RICWS SYSTEM INTERSECTION LAYOUT
S.P. XXXX-XXXX (T.H. XX) SHEET NO. 9 OF 16 SHEETS

GRANITE FALLS, MN
CHIPPEWA COUNTY

SHEET NO. 100
OF 16 SHEETS

C.S.A.H. YY (55 MPH)
T.H. XX (55 MPH)

RICWS SAMPLE PLAN

DATE
XXXX

S.P. XXXX-XXXX
(T.H. XX)
GRANITE FALLS, MN
CHIPPEWA COUNTY

SHEET NO. 100
OF 16 SHEETS

C.S.A.H. YY (55 MPH)
T.H. XX (55 MPH)

RICWS SYSTEM INTERSECTION LAYOUT
S.P. XXXX-XXXX (T.H. XX) SHEET NO. 9 OF 16 SHEETS

GRANITE FALLS, MN
CHIPPEWA COUNTY

SHEET NO. 100
OF 16 SHEETS

C.S.A.H. YY (55 MPH)
T.H. XX (55 MPH)

RICWS SAMPLE PLAN

DATE
XXXX

S.P. XXXX-XXXX
(T.H. XX)
GRANITE FALLS, MN
CHIPPEWA COUNTY

SHEET NO. 100
OF 16 SHEETS

C.S.A.H. YY (55 MPH)
T.H. XX (55 MPH)

RICWS SYSTEM INTERSECTION LAYOUT
S.P. XXXX-XXXX (T.H. XX) SHEET NO. 9 OF 16 SHEETS

GRANITE FALLS, MN
CHIPPEWA COUNTY

SHEET NO. 100
OF 16 SHEETS

C.S.A.H. YY (55 MPH)
T.H. XX (55 MPH)

RICWS SAMPLE PLAN

DATE
XXXX

S.P. XXXX-XXXX
(T.H. XX)
GRANITE FALLS, MN
CHIPPEWA COUNTY

SHEET NO. 100
OF 16 SHEETS

C.S.A.H. YY (55 MPH)
T.H. XX (55 MPH)

RICWS SYSTEM INTERSECTION LAYOUT
S.P. XXXX-XXXX (T.H. XX) SHEET NO. 9 OF 16 SHEETS

GRANITE FALLS, MN
CHIPPEWA COUNTY

SHEET NO. 100
OF 16 SHEETS

C.S.A.H. YY (55 MPH)
T.H. XX (55 MPH)

RICWS SAMPLE PLAN

DATE
XXXX

S.P. XXXX-XXXX
(T.H. XX)
GRANITE FALLS, MN
CHIPPEWA COUNTY

SHEET NO. 100
OF 16 SHEETS

C.S.A.H. YY (55 MPH)
T.H. XX (55 MPH)

RICWS SYSTEM INTERSECTION LAYOUT
S.P. XXXX-XXXX (T.H. XX) SHEET NO. 9 OF 16 SHEETS

GRANITE FALLS, MN
CHIPPEWA COUNTY

SHEET NO. 100
OF 16 SHEETS

C.S.A.H. YY (55 MPH)
T.H. XX (55 MPH)

RICWS SAMPLE PLAN

DATE
XXXX

S.P. XXXX-XXXX
(T.H. XX)
GRANITE FALLS, MN
CHIPPEWA COUNTY

SHEET NO. 100
OF 16 SHEETS

C.S.A.H. YY (55 MPH)
T.H. XX (55 MPH)

RICWS SYSTEM INTERSECTION LAYOUT
S.P. XXXX-XXXX (T.H. XX) SHEET NO. 9 OF 16 SHEETS

GRANITE FALLS, MN
CHIPPEWA COUNTY

SHEET NO. 100
OF 16 SHEETS

C.S.A.H. YY (55 MPH)
T.H. XX (55 MPH)
RICWS CABINET

CONDUCTOR COLOR CODE (14 GAUGE):

TO RICWS CABINET/DEVICE

1) FLASHER SYSTEM AND LUMINAIRES SHALL BE METERED POWER.

NOTES:

ALL POLE CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

RICWS SAMPLE PLAN
T.H. XX AT C.S.A.H. YY
GRANITE FALLS, MN
CHIPPEWA COUNTY

RICWS SYSTEM FIELD WIRING DIAGRAM
S.P. XXXX-XXXX (T.H. XX) SHEET NO. 11 OF 16 SHEETS

SHEET NO.
1
2
3

NOTES:

TO RICWS CABINET/DEVICE

1) FLASHER SYSTEM AND LUMINAIRES SHALL BE METERED POWER.

NOTES:

ALL POLE CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.
NOTES ARE PROJECT SPECIFIC AND NEED TO BE VERIFIED.

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE 'ONE CALL EXCAVATION NOTICE SYSTEM' (PHONE NUMBER 651-454-0002). THIS IS REQUIRED BY MINNESOTA STATUTE 216D.

2. NO UTILITIES ARE ANTICIPATED TO BE AFFECTED BY THIS PROJECT.

3. THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL 'D'. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 3802, ENTITLED 'STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA.'

UTILITY OWNERSHIP

<table>
<thead>
<tr>
<th>BURIED TV, TEL</th>
<th>FIRST COMMUNICATION SYSTEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-08</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OVERHEAD POWER</th>
<th>SECOND ELECTRIC COOPERATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-09</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>THIRD ENERGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-10</td>
</tr>
</tbody>
</table>

NOTES ARE PROJECT SPECIFIC AND NEED TO BE VERIFIED.

STATE 216D.

NOTICE SYSTEM" (PHONE NUMBER 651-454-0002). THIS IS REQUIRED BY MINNESOTA STATUTE 216D.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE 'ONE CALL EXCAVATION

NO UTILITIES ARE ANTICIPATED TO BE AFFECTED BY THIS PROJECT.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL 'D'.

THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 3802, ENTITLED 'STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA.'
PERMANENT PAVEMENT MARKING PLAN
NOTES & GUIDELINES

GENERAL INFORMATION:
The Engineer's involvement in the application of the material shall be limited to field consultation and inspection. The Contractor will place necessary spotting at appropriate points to provide horizontal control for striping and to determine necessary starting and cutoff points. Longitudinal joints, pavement edges and existing markings may serve as horizontal control when so directed.

Edge lines and lane lines are to be broken only at intersections with public roads and at private entrances if they are controlled by an agency placed yield sign, stop sign or traffic signal, the break point is to be at the start of the radius for the intersection or at marked stop lines or crosswalks.

A tolerance of 1/4 inch under or 1/4 inch over the specified width will be allowed for striping provided the variation is gradual and does not detract from the general appearance. Broken line segments may vary up to 3 inches from the specified lengths provided the over and under variations are reasonably compatible. Distances from the control guide shall not exceed 1 inch. Material shall not be applied over longitudinal joints. Establishment of application tolerances shall not release the contractor of their responsibility to comply as closely as practicable with the planned dimensions.

Just prior to the placement of pavement markings the road surface shall be cleaned and free of contamination as recommended by the material manufacturer and acceptable to the engineer. Portland cement concrete surfaces shall be sandblast cleaned to remove any surface treatments and/or laitance.

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

REFER TO SPECIAL PROVISIONS OR SPEC BOOK FOR GROUND IN/RECESSED PAVEMENT PREVENT SPILLAGE OF MATERIAL.

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

APPLY ALL PAVEMENT MARKINGS AS RECOMMENDED BY THE MATERIAL MANUFACTURER.

GENERAL NOTES:
1. POST LENGTHS ARE APPROXIMATE AND ENCLOSE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEET 16 FOR SIGN PLACEMENT DETAILS.
3. SEE SHEETS 4 TO 5 FOR STRUCTURAL DETAILS.
4. SEE SHEET 5 FOR TYPICAL MOUNTING.

MULTI-COMPONENT LIQUID:

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEARED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE.

THE MULTI-COMPONENT LIQUID MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE MULTI-COMPONENT LIQUID PAVEMENT MARKING.

APPLY MULTI-COMPONENT LIQUID MARKING APPLICATIONS WITH A MINIMUM THICKNESS OF 20 MILS. GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 25 LB/GAL. THE "NO-TRACKING" CONDITION SHALL BE DETERMINED ON AN APPLICATION OF SPECIFIED THICKNESS TO THE PAVEMENT AND COVERED WITH GLASS BEADS AT THE RATE OF AT LEAST 25 LB/GAL.

PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR AND PAVEMENT SURFACE TEMPERATURES ARE 40° F OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OF DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE. AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

THE MULTI-COMPONENT LIQUID MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE MULTI-COMPONENT LIQUID PAVEMENT MARKING.

APPLY MULTI-COMPONENT LIQUID MARKING APPLICATIONS WITH A MINIMUM THICKNESS OF 20 MILS. GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 25 LB/GAL. THE "NO-TRACKING" CONDITION SHALL BE DETERMINED ON AN APPLICATION OF SPECIFIED THICKNESS TO THE PAVEMENT AND COVERED WITH GLASS BEADS AT THE RATE OF AT LEAST 25 LB/GAL.

PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR AND PAVEMENT SURFACE TEMPERATURES ARE 40° F OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OF DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE. AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

GENERAL INFORMATION:
The Engineer's involvement in the application of the material shall be limited to field consultation and inspection. The Contractor will place necessary spotting at appropriate points to provide horizontal control for striping and to determine necessary starting and cutoff points. Longitudinal joints, pavement edges and existing markings may serve as horizontal control when so directed.

GENERAL NOTES:
1. POST LENGTHS ARE APPROXIMATE AND ENCLOSE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEET 16 FOR SIGN PLACEMENT DETAILS.
3. SEE SHEETS 4 TO 5 FOR STRUCTURAL DETAILS.
4. SEE SHEET 5 FOR TYPICAL MOUNTING.

SPECIFIC NOTES:
1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE). SEE SHEET 5 FOR TYPICAL MOUNTING.

GENERAL NOTES:
1. POST LENGTHS ARE APPROXIMATE AND ENCLOSE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEET 16 FOR SIGN PLACEMENT DETAILS.
3. SEE SHEETS 4 TO 5 FOR STRUCTURAL DETAILS.
4. SEE SHEET 5 FOR TYPICAL MOUNTING.

SPECIFIC NOTES:
1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE). SEE SHEET 5 FOR TYPICAL MOUNTING.

GENERAL NOTES:
1. POST LENGTHS ARE APPROXIMATE AND ENCLOSE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEET 16 FOR SIGN PLACEMENT DETAILS.
3. SEE SHEETS 4 TO 5 FOR STRUCTURAL DETAILS.
4. SEE SHEET 5 FOR TYPICAL MOUNTING.

SPECIFIC NOTES:
1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE). SEE SHEET 5 FOR TYPICAL MOUNTING.

GENERAL NOTES:
1. POST LENGTHS ARE APPROXIMATE AND ENCLOSE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEET 16 FOR SIGN PLACEMENT DETAILS.
3. SEE SHEETS 4 TO 5 FOR STRUCTURAL DETAILS.
4. SEE SHEET 5 FOR TYPICAL MOUNTING.

SPECIFIC NOTES:
1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE). SEE SHEET 5 FOR TYPICAL MOUNTING.

GENERAL NOTES:
1. POST LENGTHS ARE APPROXIMATE AND ENCLOSE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEET 16 FOR SIGN PLACEMENT DETAILS.
3. SEE SHEETS 4 TO 5 FOR STRUCTURAL DETAILS.
4. SEE SHEET 5 FOR TYPICAL MOUNTING.

SPECIFIC NOTES:
1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE). SEE SHEET 5 FOR TYPICAL MOUNTING.

GENERAL NOTES:
1. POST LENGTHS ARE APPROXIMATE AND ENCLOSE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEET 16 FOR SIGN PLACEMENT DETAILS.
3. SEE SHEETS 4 TO 5 FOR STRUCTURAL DETAILS.
4. SEE SHEET 5 FOR TYPICAL MOUNTING.

SPECIFIC NOTES:
1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE). SEE SHEET 5 FOR TYPICAL MOUNTING.

GENERAL NOTES:
1. POST LENGTHS ARE APPROXIMATE AND ENCLOSE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEET 16 FOR SIGN PLACEMENT DETAILS.
3. SEE SHEETS 4 TO 5 FOR STRUCTURAL DETAILS.
4. SEE SHEET 5 FOR TYPICAL MOUNTING.

SPECIFIC NOTES:
1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE). SEE SHEET 5 FOR TYPICAL MOUNTING.

GENERAL NOTES:
1. POST LENGTHS ARE APPROXIMATE AND ENCLOSE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE SHEET 16 FOR SIGN PLACEMENT DETAILS.
3. SEE SHEETS 4 TO 5 FOR STRUCTURAL DETAILS.
4. SEE SHEET 5 FOR TYPICAL MOUNTING.
**NOTES:**

1. ALL TYPE C AND D MOUNTING HEIGHTS ARE MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF PAVEMENT IN RURAL AREAS OR TO THE TOP OF THE CURB OR IN THE ABSENCE OF CURB, TO THE NEAR EDGE OF THE TRAVELED WAY.

2. SIGN FACES SHALL BE VERTICAL.

3. OVERHEAD SIGNS SHALL BE POSITIONED AT RIGHT ANGLES TO THE THRU ROADWAY UNLESS OTHERWISE NOTED.

4. TO AVOID SPECULAR GLARE, \( \angle A \) SHALL BE APPROXIMATELY 93° FOR SIGNS LOCATED LESS THAN 30' FROM THE EDGE OF THRU LANE AND APPROXIMATELY 92° FOR SIGNS LOCATED 30' OR MORE FROM EDGE OF THRU LANE. THIS APPLIES TO SIGNS TYPE A, C, & D AND INCLUDES SIGNS IN THE GORE.

5. \( 'Y' \) IS THE PERPENDICULAR DISTANCE FROM THE GROUND LINE TO THE FRICTION FUSE ON THE POST. THIS DISTANCE SHALL BE AT LEAST 7'.

6. WHERE \( 'X' \) IS LESS THAN 30', \( 'H' \) SHALL BE 7', WHERE \( 'X' \) IS 30' OR GREATER, MINIMUM AND PREFERRED \( 'H' \) IS 5'.

7. LATERAL CLEARANCES GIVEN APPLY TO RIGHT AND OR LEFT SIDE INSTALLATION.


**GORE PLACEMENT**

- **ROUTE MARKER, REGULATORY & WARNING SIGNS - TYPE C**
- **GUIDE SIGNS - TYPE D**

**ROADSIDE PLACEMENT**

- **GUIDE SIGN - TYPE A**

**SPECIFIC NOTES:**

1. **EXIT SIGN**
   - IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.

2. **MERGE OR ADDED LANE SIGN**
   - IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.